The opening, a hinge, a door, a lid or a panel **208** may include a sensor (not shown) that prevents the testing process or notifies a user via the user interface **128** if the opening, a hinge, a door, a lid or a panel **208** is not closed properly. The power supply **124** may include one or more batteries, an AC or DC electrical connection, one or more solar panels, a piezoelectric generator, a kinetic energy converter, an electromagnetic energy converter, an inductively coupled charger or a combination thereof. The user interface **128** can be touch screen interface, keyboard, buttons, mouse, track ball, display, speakers, microphone or other desired components to interface with a user. The user interface **128** enable test selection and input of identifying information to pair the test with a patient. The one or more communication interfaces **130** may include a USB-type interface, a video interface, an audio interface, a printer interface, a data transfer interface, a network interface, an optical communications interface, a keyboard cable interface, a mouse cable interface, a wireless device interface, a wireless transceiver, an identity recognition device or a combination thereof. The POC device **102** can be man-portable or handheld (e.g., the housing **122** is less than or equal to approximately four inches by 2.5 inches by 0.5 inches thick).

[0033] The one or more detectors or sensors **134** are operably connected (indicated by arrow **138**) to the test cartridge interface **132** and/or the test cartridge **104** to detect one or more properties of a sample or an analyte **204** and generate a test results data based on the one or more properties. The one or more detectors or sensors **134** may detect the one or more properties of the sample or the analyte **204** using fluorescence, luminescence, absorbance, infrared (IR) spectroscopies, surface plasmon resonance (SPR), nuclear magnetic resonance (NMR), Raman Spectroscopy, mass spectrometry (MS), IR (infrared) spectroscopy, X-ray photoelectron spectroscopy (XPS), atomic force microscopy (AFM), electron microscopy (EM), dynamic light scattering (DLS), quartz crystal microbalance (QCM), surface acoustic wave (SAW), other detection process, or any combination thereof. The sample **204** can be blood, urine, saliva, cerebrospinal fluid, feces, sputum, bronchoalveolar lavages, vaginal lavages, anal lavages, hair, skin, tumor, cells or other matter. The analyte **204** can be nucleic acids (including but not limited to DNA and RNA), proteins, metabolites, carbohydrates, lipids, chemicals, normal eukaryotic cells (including but not limited to lymphocytes, erythrocytes, epithelial cells, endothelial cells, and neural cells), diseased eukaryotic cells (including but not limited to lymphocytes, erythrocytes, epithelial cells, endothelial cells, and neural cells), tissue (including but not limited to fingernails, toenails, platelets, and tumors), bacteria, fungi, viruses or other biological, chemical or physical substance.

[0034] The one or more processors **136** receive a test selection from the user interface **128**, determine whether a test cartridge **104** connected to the test cartridge interface **132** matches the test selection, receive the test results data from the one or more detectors or sensors **134**, generate a report based on an analysis of the test results data, and provide the report to the user interface **128**. The test results data evaluate the sample or analyte **204**. One or more tests can be performed on the sample or the analyte **204** using one or more testing or analysis components disposed within the test cartridge **104**, the test cartridge interface **132** or the housing **122**. The one or more processors **136** control the test cartridge **104** via the test cartridge interface **132** to load the sample or the analyte **204** within the test cartridge **132** into the one or more testing or analysis components such that the one or more testing or analysis components perform the one or more tests on the sample or the analyte **204**. The one or more testing or analysis components can incubate the sample or analyte **204**, heat the sample or analyte **204**, cool the sample or analyte **204**, separate the sample or analyte **204**, distribute the sample or analyte **204**, illuminate the sample or analyte **204**, pressurize the sample or analyte **204**, perform any other process, or any combination thereof. In addition, the one or more testing or analysis components may use one or more techniques, including but not limited to microarrays or micro-versions of polymerase chain reaction (PCR), sequencing, ligand binding assays, Luminex, microscopy, imaging, flow cytometry, or mass spectrometry.

[0035] The test cartridge **104**, the test cartridge interface **132** or the housing **122** may also include one or more reservoirs, compartments, wells, channels, tubes, microfluidic pumps, nonfluidic pumps, pillars, inlets valves or outlet valves for storing, moving, processing, testing or disposing of the sample or analyte **204**, one or more reagents, one or more immobilized capture molecules, one or more chemicals, one or more cleaning fluids, one or more waste materials or a combination thereof. The test cartridges **104** are typically configured to perform one or more tests on the sample or the analyte **204**. For example, test cartridge **104**A is configured to perform a first test, test cartridge **104**B is configured to perform a second test, and test cartridge **104**N is configured to perform a set of other tests. So, the test cartridge **104** can be configured for a single specific test, a selected test from a set of available tests, or multiple tests (serial or parallel). The sample or analyte **204** is deposited within the test cartridge **104** by any suitable means. The test cartridge **104** can be inserted into the test cartridge interface **132** before or after the deposit of the sample or analyte **204** depending of the test to be performed, the configuration of the test cartridge **104** and the method of obtaining the sample or analyte **204** from the patient. The test cartridge **104** is preferably disposable; but in certain configurations and under suitable circumstances, the test cartridge **104** can be reused. Note that the test cartridge **104** or test cartridge interface **132** can be configured to process the sample and extract the analyte from the sample.

[0036] In addition, the sample or analyte **204** can be deposited within the test cartridge **104** or test cartridge interface **132** using sample port **202** and a pipet or other instrument. Moreover, the sample or analyte **204** can be introduced into the sample port **202** using an adapter or collection device **206**. For example, an adapter **204** can be used to accept samples or analytes **204** obtained via a swab, or a finger prick. The sample or analyte **204** is moved or transfered from the adapter **206** or sample port **202** to the test cartridge interface **132** via one or more reservoirs, compartments, wells, channels, tubes, microfluidic pumps, nonfluidic pumps or pillars (individually or collectively denoted by arrow **208**.

[0037] In one embodiment, the one or more processors **136** of the POC device **102** generate the report by transmitting the test results data to a remote device (e.g., the server computer **106**) via network **108** and the one or more communication interfaces **130**. The server computer **106** generates the report based on the analysis of the test results data, and transmits the report to the POC device **102**. The report may include a gene-based predicted outcome, a possible effect on a patient, a genotype result for the patient, a genotype interpretation summary, a potentially harmful drug interaction report, a